



Tomoki Todo

Japan

Tomoki Todo, M.D., Ph.D., is the Professor of Innovative Cancer Therapy at the Institute of Medical Science, the University of Tokyo (IMSUT), and the Head of Department of Surgical Neuro-Oncology of the IMSUT Hospital. He also serves as the Hospital Director since 2023. He received his M.D. from the University of Tokyo in 1985 and his Ph.D. in Medical Science from the University of Tokyo in 1994. He is a board-certified neurosurgeon with an extensive experience in cancer research and is one of the pioneers in the field of clinical development of oncolytic HSV-1. He developed a triple-mutated, third-generation oncolytic HSV-1 (G47 Δ) that received a drug approval in Japan in 2021 as the world's first oncolytic virus product for malignant glioma, after a successful phase II trial in patients with glioblastoma.

Topic: Development and Approval of Oncolytic Herpes Virus G47 Δ for Malignant Glioma in Japan

A triple-mutated oncolytic herpes simplex viruses type 1, G47 Δ , exhibits enhanced replication capability in all solid cancer, efficient induction of specific antitumor immunity, and high safety features. The investigator-initiated phase II clinical trial of G47 Δ was performed from 2015 in adult patients with recurrent or residual glioblastoma. Each patient received stereotactic injections with G47 Δ into the tumor, repeatedly, but into different coordinates, for the maximum 6 times. In 19 patients registered, the primary endpoint of 1-year survival rate after G47 Δ initiation was 84.2%. The median overall survival was 20.2 months after G47 Δ initiation and 3 patients lived >7 years. On MRI, contrast-enhancement clearing within and enlargement of the target lesion occurred after each G47 Δ administration. Biopsies revealed increasing numbers of tumor-infiltrating CD4+/CD8+ lymphocytes and persistent low numbers of Foxp3+ cells. This study showed a survival benefit with potential cures, which led to the 2021 drug approval of G47 Δ in Japan.